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Science and Technology for Tomorrow's Air and Space Force

Success Story

AVIONICS ISOLATION FOR LAUNCH VEHICLES

The Space Vehicles Directorate and CSA Engineering developed a system to isolate launch vehicle avionics while simultaneously providing a thermally conductive path to offload heat. The system recently flew on Taurus 6.

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Accomplishment

CSA Engineering, under the direction of directorate engineers, developed avionics isolators composed of filled viscoelastic compounds to meet the isolation and thermal conductivity requirements of Orbital Sciences Corporation for their fleet of launch vehicles. The isolators recently flew on the Taurus launch vehicle carrying a high-resolution imaging satellite [Orbview 4].

Background

Launch vehicle avionics often require isolation from launch vibration loads to prevent damage during operation and a thermally conductive interface to offload the large amounts of heat they generate. Furthermore, launch vehicle avionics must perform these tasks over the large temperature range experienced by a launch vehicle during ascent. CSA Engineering developed an isolation component that performs both of these tasks in a single unit.

CSA Engineering is the prime contractor on the effort while Orbital Sciences Corporation is a subcontractor. CSA engineers size the isolators for interchange with existing, poorly conductive isolators. A new material provides better thermal conductivity, better vibration isolation, and less temperature sensitivity than conventional viscoelastics.

Space Vehicles
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (02-VS-03)